AGC/WSDOT ROADWAY TEAM

MINUTES for Meeting of June 17, 2004
AGC Office, Tacoma WA

Attending:

X	Frank Scarsella	**X**	Bill Grady		Mike Tolkuehn
	Scott Stephens		Jeff Peterson		Bob Glenn
	Joe Spink	**X**	Dan Glover	**X**	Jim Spaid
X	Al Dyer		Ray Arnold		Mike Morishige
	Dean Moberg	**X**	Ken Stone		Terry Mattson
	Larry Eik	**X**	Chris Deane	**X**	Larry Burgma
X	Ron Reilly				

Minutes of April 15, 2004 Meeting
Distributed copies and no added comments made.

Old Business

Minutes of Other Team Meetings

Jim Spaid distributed copies of the notes from the June 11, 2004 meeting of the Admin Team. Of note was the revisions to the traffic control specifications that will be put into contracts advertised after August 1. Other business included a resolution of the issue regarding the use of roll-up signs on construction projects. Revisions to the specifications (Section 9-35) that will be in effect on August 1, will not allow roll-up signs to be used. However, equipment purchased before July 1, 2004 may be used until December 31, 2007.

Notes from the Structures Team meetings of April 9, and May 7, 2004, were distributed. Jim Spaid noted that the steel price and availability issues were being monitored but there was no plan to try to incorporate an escalation clause in contracts. New stirrup details for prestressed girders were being tested on some upcoming projects. The 14-day cure requirement before backfilling walls is being reviewed and revision will be drafted for review by the team.

Meeting notes from various industry/WSDOT teams may be viewed at The State Construction Office website at the following address:
http://www.wsdot.wa.gov/biz/construction/Default.cfm

Section 9-16 – Fence Material Changes – This was the final opportunity for comments on the changes to these material specifications. For the most part, these changes are to

update the requirements for the steel posts, wire and chain link fence fabric. There were no comments received on the changes. They will be in effect for projects advertised after August 1, 2004.

Section 8-22.3(3) Pavement Marking Changes – This change was distributed for review at the last meeting. To get input from subject matter experts, Bill Grady introduced Ron Reilly from Apply-A-Line, and Larry Burgma from Stripe Rite. The initial part of the discussion focused on the changes that were proposed. These changes involved distinguishing between the surface preparation requirements for paint and plastic pavement markings, and adding requirements for time between paint applications for solvent borne paints. Larry and Ron asked why the time between applications was so long (4 hours between coats of waterborne paints). Ron gave Jim a copy of a letter from a paint manufacturer that indicated that their waterborne paint product could be recoated in as little as 30 minutes under "ideal drying conditions." Jim Spaid indicated that we typically looked at nationwide research or manufacturers recommendations for setting such limits. Jim Spaid agreed to consider the information presented for future revisions of the specifications. The proposed specification actually represented a step in the direction of allowing less time between coatings for certain types of paint, so it would be advanced to publication with the August 1 amendments.

Other issues raised by Ron and Larry were as follows:

1. Regarding the items for removal of painted or plastic lines, it was proposed to measure each width of line separately. The wider lines take much more effort to remove than the narrow lane lines. It would be easier to bid if the items were separate.
2. Consistency in where the various types of plastic markings (Type A through Type D) are specified in plans.
3. The temperature restrictions for application of paint markings are an issue for projects that require the work to be done at night. The current specification requires the pavement surface temperature to be 50°F and rising.

The issues raised will be given consideration in future changes to the pavement marking specifications.

New Business

Section 8-01.3(1)B ESC Lead – The changes in this section were largely editorial in nature, and intended to clarify the duties of the ESC Lead. A requirement that was added was that a copy of the inspection report was to be submitted to the Engineer no later than the end of the next working day. This change will be published with the August 1, amendment package.

Section 8-01.3(1)C and beyond – Jim Spaid distributed copies of changes to Section 8-01 beginning with Water Management (Section 8-01.3(1)C) through the end of the section. Changes involved a number of grammatical changes, and changes made for clarity. Some added specifications included a section on dispersion/infiltration, soil binding using bonded fiber matrix and mechanically bonded fiber matrix. Jim noted that these specifications would be under review for the December publication of amendments. Jim will send electronic copies for review by Team members.

Section 9-17, Flexible Guideposts – Jim Spaid distributed copies of both the current specification and proposed changes in the materials specification for flexible guideposts. Changes involve some changes in the pre-approval process, the testing procedures and

the methods of acceptance. Jim asked for comments for the next meeting. Electronic copies will be sent to Team members.

Electrical – Section 8-20 and 9-29 – Jim Spaid is continuing to review proposed changes for Sections 8-20 and 9-29, with subject matter experts within WSDOT. Proposed changsto these sections will be brought to a future meeting. Jim notes that he hopes to also engage the services of a select group of specialty folks from industry to review and comment on the changes.

Annual Meeting Topic Suggestions – A short discussion of possible topics to be presented at the AGC/WSDOT Annual Meeting was held. The list of suggestions was as follows:

Environmental Issues
SeaTac Third Runway Project
Tacoma Narrows
Hood Canal Project (hold for 2005/2006 meeting)

The Annual Meeting is scheduled for January 6, 2005.

Other Business

Discussion Topics

The following list of topics will be kept as part of the minutes and future agendas to indicate the items that have surfaced as issues for discussion by the team. As each issue is addressed, it may be removed from the list. As new issues are raised, they will be added to the list as a reminder of the things that need discussion:

{Note: Issues that are added will now include the date (11/30/00) they were included on the list so the team can track their longevity}

- Shoulder Rock - further discussion of method of payment.
- Smoothness Specification for ACP - this is an issue of information. A subcommittee of the APAW/WSDOT Joint Task Force is working on the specifics of this issue.
- Longitudinal Wedge Joint
- Testing Storm Sewer Pipe - recent changes in the testing requirements for HDPE pipe have increased the length of time for testing.
  (5/24/01) - What is the background for those changes?
  (9/20/01) - Discussed the duration of the test. Bill G. said why hold it so long when you know within the first few minutes if you have a leak and thus a failing pipe.
- Signal Detector Loops - Suggested the number of bid items could be reduced by bidding loops per each rather than separate bid items for each type of set (for instance, R1, R2, R3, etc. for loop sets of 1, 2 or 3 loops).
- Structure Excavation Class B – backfilling trenches (5/9/03) Meas. and Payment 2-09
- Aggregate Substitution (5/9/03)
- Documentation requirements for consumables

Next Meeting

The next meeting is scheduled for **Thursday, September 16, 2004** at the Tacoma AGC office beginning at **8:00am**.

Proposed changes to Section 8-01

8-01.3(1)C Water Management

1. Ground Water

When ground water is encountered in an excavation, it shall be treated and discharged as follows:

A. When the ground water meets State Water Quality Standards, it may bypass detention and treatment facilities and be routed directly to its normal discharge point at a rate and method that will not cause erosion.

B. When the turbidity of the ground water is similar to the turbidity of the site runoff, the ground water may be treated using the same detention and treatment facilities being used to treat the site runoff and then discharged at a rate that will not cause erosion.

C. When the turbidity is worse than the turbidity of the site runoff, the ground water shall be treated separately until the turbidity is similar to or better than the site runoff before the two may be combined and treated using the same detention and treatment facilities being used to treat the site runoff and then discharged at a rate that will not cause erosion.

2. Process Water

Any water generated on site from construction or washing activities that is more turbid than site runoff shall be treated separately until the turbidity is similar to or better than the site runoff before the two may be combined and treated using the same detention and treatment facilities being used to treat the site runoff and then discharged at a rate that will not cause erosion. Water shall be infiltrated upon the approval of the Engineer.

3. Offsite Water

Runoff from adjacent sites shall be diverted around disturbed areas to a stabilized outlet at its normal discharge point and rate.

8-01.3(1)D Dispersion/Infiltration

When directed by the Engineer, water shall be conveyed to dispersion or infiltration areas designated on the TESC plan sheets. Water shall be conveyed to designated dispersion areas at a rate that when runoff leaves the area, turbidity standards are achieved. Water shall be conveyed to designated infiltration areas at a rate that does not produce runoff.

8-01.3(1)E Detention/Retention Pond Construction

Whether permanent or temporary, the detention or retention pond shall be constructed before beginning other grading and excavation work in the area that drains into that pond. If the pond will serve as the permanent structure, the bottom of the facility shall be rough excavated to 1 foot above final grade. Near the end of construction when soils are stabilized, the pond shall be excavated to final grade using tracked vehicles. Temporary conveyances shall be installed concurrently with grading in accordance with the TESC plan so that newly graded areas drain to the pond as they are exposed.

8-01.3(2) Temporary Seeding, Mulching, and Soil Binding

8-01.3(2)A Temporary Seeding

Temporary seeding is used to establish temporary cover on disturbed soil. Temporary seeding shall be in accordance with Section 8-02.3(15). If seeding outside the application windows established in 8-02.3(15)F, the wood cellulose fiber used for temporary seeding shall be replaced with either a bonded fiber matrix or a mechanically-bonded fiber matrix.

8-01.3(2)B Temporary Mulching

Temporary mulch, such as straw, compost, or other materials as approved by the Engineer, may be applied at any time of the year for soil cover. Temporary mulching shall be in accordance with Section 8-02.3(15).

8-01.3(2)C Soil Binding Using Polyacrylamide (PAM)

The PAM shall be completely dissolved and mixed in water prior to being applied to the soil. PAM shall be applied only on bare soil at a rate of not more than 0.5 pounds per 1M

gallons of water per acre. A minimum of 200 pounds per acre of cellulose fiber mulch treated with a non-toxic dye shall be applied with the PAM.

PAM shall be applied only to areas that drain to completed sedimentation control BMPs in accordance with the TESC plan. PAM shall not be applied to the same area more than once in a 48 hour period, or more than 7 times in a 30 day period.

PAM shall not be applied during a rain or to saturated soils.

8-01.3(2)D Soil Binding Using Bonded Fiber Matrix (BFM)

The BFM shall be hydraulically applied in accordance with 8-02.3(15)B. The BFM may be mixed with seed and fertilizer. The BFM shall be allowed to cure for a minimum of 24 hours and shall not be applied to saturated soils, nor during or prior to expected precipitation events. The manufacturer's installation instructions and recommendations shall be followed.

8-01.3(2)E Soil Binding Using Mechanically-Bonded Fiber Matrix (MBFM)

The MBFM shall be hydraulically applied in accordance with 8-02.3(15)B. The MBFM may be mixed with seed and fertilizer. The MBFM shall not require any curing time and may be applied to saturated soil as well as prior to precipitation events. The manufacturer's installation instructions and recommendations shall be followed.

8-01.3(3) Placing Erosion Control Blanket

When required, erosion control blanket shall be placed immediately following the seeding and fertilizing operation. Temporary erosion control blankets as defined in 9-14.5, having an open area of 60% or greater, may be installed prior to seeding.

8-01.3(4) Placing Compost Blanket

Compost blanket shall be placed to a depth of 3 inches over bare soil. Compost blanket shall be placed before seeding or other planting. Compost used for compost blanket shall meet the requirements of 9-14.4(8).

8-01.3(5) Placing Plastic Covering

Plastic meeting the requirements of Section 9-14.5(3) shall be placed with at least a 12-inch overlap of all seams.

Clear plastic covering shall be used to promote growth of vegetation. Black plastic covering shall be used for stockpiles or other areas where vegetative growth is unwanted.

The cover shall be maintained tightly in place by using sandbags on ropes in a 10-foot, maximum, grid. All seams shall be weighted down full length.

8-01.3(7) Stabilized Construction Entrance

Temporary stabilized construction entrance shall be constructed in accordance with the Plans, prior to beginning any clearing, grubbing, earthwork or excavation.

When the stabilized entrance no longer prevents track out of sediment or debris, the Contractor shall either rehabilitate the existing entrance to original condition, or construct a new entrance.

When the contract requires a tire wash in conjunction with the stabilized entrance, the Contractor shall include details for the tire wash and the method for containing and treating the sediment-laden runoff as part of the TESC plan. All vehicles leaving the site shall stop and wash sediment from their tires.

8-01.3(9)B Gravel Filter, Wood Chip or Compost Berm

The gravel filter berm shall be a minimum of one foot in height and shall be maintained at this height for the entire time they are in use.

The wood chip berm shall be a minimum of two feet in height and shall be maintained at this height for the entire time they are in use. Wood chips shall meet the requirements in Section 9-14.4(3).

The compost berm shall be constructed according to the Plan. Compost shall be Type 2 in accordance with Section 9-14.4(8).

8-01.3(10) Wattles

Wattles shall be installed as soon as construction will allow or when designated by the Engineer. Trench construction and wattle installation shall begin from the base of the slope and work uphill. Excavated material shall be spread evenly along the uphill slope and compacted using hand tamping or other method approved by the Engineer. On gradually sloped or clay-type

soils trenches shall be 2 to 3 inches deep. On loose soils, in high rainfall areas, or on steep slopes, trenches shall be 3 to 5 inches deep, or half the thickness of the wattle.

8-01.3(13) Temporary Curb

Temporary curbs may consist of asphalt, concrete, sand bags, compost socks, wattles, or geotextile/plastic encased berms of soil, sand or gravel, or as approved by the Engineer.

Temporary curbs shall be installed along pavement edges to prevent runoff from flowing onto erodible slopes. The redirected water shall flow to a BMP designed to convey concentrated runoff. The temporary curbs shall be 4 inches in height.

8- 01.3(14) Temporary Pipe Slope Drain

Pipe slope drain shall be constructed in accordance with the Plans and shall meet the requirements of Section 9-05.1(6).

Water Interceptor dikes or temporary curbs shall be used to direct water into pipe slope drain. Entrance to drain may consist of prefabricated funnel device specifically designed for application, rock, sand bags, or as approved by the Engineer. The soil around and under the pipe section(s) shall be thoroughly compacted to prevent undercutting.

Pipe shall be securely fastened together and have gasketed watertight fittings, and secured to the slope with metal "T" posts, wood stakes, sand bags, or as approved by the Engineer.

Discharge the water to a stabilized conveyance, sediment trap, stormwater pond, rock splash pad, vegetated strip, or as approved by the Engineer.

Placement of drain shall not pond water on road surface and create a road hazard to vehicles or pedestrians.

8-01.3(15) Maintenance

Erosion and sediment control BMPs shall be maintained so they properly perform their function until the Engineer determines they are no longer needed.

The BMPs shall be inspected on the schedule outlined in Section 8-01.3(1)B for damage and sediment deposits. Damage to or undercutting of BMPs shall be repaired immediately.

Unless otherwise specified, when the depth of accumulated sediment and debris reaches approximately one-third the height of the BMP the deposits shall be removed. Debris or contaminated sediment shall be disposed of in accordance with Section 2-01.2. Clean sediments may be stabilized on site using approved best management practices when the Engineer approves.

Erosion and sediment control BMPs that have been damaged shall be repaired or replaced immediately by the Contractor, in accordance with Section 1-07.13(4).

8-01.3(16) Removal

When the Engineer determines that an erosion control BMP is no longer required, the Contractor shall remove the BMP and all associated hardware from the project limits. When the materials are biodegradable the Engineer may approve leaving the temporary BMP in place.

The Contractor shall permanently stabilize all bare and disturbed soil after removal of erosion and sediment control BMPs. If the installation and use of the erosion control BMPs have compacted or otherwise rendered the soil inhospitable to plant growth, such as construction entrances, the Contractor shall take measures to rehabilitate the soil to facilitate plant growth. This may include, but is not limited to, ripping the soil, incorporating soil amendments, or other horticultural practices.

8-01.4 Measurement

ESC lead will be measured by the day, for each day that an inspection is made and a report is filed.

Measurement of erosion control blanket and of plastic covering will be by the square yard measurement of surface area covered and accepted.

Check dams will be measured by the linear foot along the ground line of the completed check dam.

Stabilized construction entrance will be measured by the square yard for each entrance constructed.

Tire wash facilities will be measured per each for each wash installed.

Street cleaning will be measured by the hour for the actual time spent cleaning pavement, as authorized by the Engineer. Time to move the equipment to or from the area on which street cleaning is required will not be measured.

Inlet protection will be measured per each for each initial installation at a drainage structure.

Silt fence, gravel filter, compost, and wood chip berms will be measured by the linear foot along the ground line of completed barrier.

Straw bale barrier will be measured per each for each bale placed in the initial installation at a barrier location.

Wattle and compost sock will be measured by the linear foot along the ground line of the completed wattle.

Live fascine will be measured by the linear foot.

Temporary curb will be measured by the linear foot.

Temporary Pipe slope drain will be measured by the linear foot of pipe laid as shown in the contract plans.

PAM will be measured by the acre.

8-01.5 Payment

Payment will be made in accordance with Section 1-04.1, for each of the following bid items that are included in the proposal:

"ESC Lead", per day.

"___ Erosion Control Blanket", per square yard.

"Plastic Covering", per square yard.

"Check Dam", per linear foot.

"Stabilized Construction Entrance", per square yard.

"Tire Wash", per each.

The unit contract per each for tire wash shall include all costs associated with constructing, operating, maintaining, and removing the tire wash.

“Street Cleaning”, per hour.
“Inlet Protection”, per each.
“Silt Fence”, per linear foot.
“Gravel Filter Berm”, per linear foot.
“Wood Chip Berm”, per linear foot.
“Compost Berm”, per linear foot.

“Straw Bale” , per each.
“Wattle”, per linear foot.
“Live Fascine”, per linear foot.
“Compost Sock”, per linear foot.
“Erosion/Water Pollution Control”, by force account as provided in Section 1-09.6.

Maintenance and removal of erosion and water pollution control devices including removal and disposal of sediment, stabilization and rehabilitation of soil disturbed by these activities, and any additional work deemed necessary by the Engineer to control erosion and water pollution will be paid by force account under the item “Erosion/Water Pollution Control”.

To provide a common proposal for all bidders, the Contracting Agency has entered an amount in the proposal to become a part of the Contractor’s total bid.

“Temporary Curb”, per linear foot.

The unit contract price per linear foot for temporary curb shall include all costs to install, maintain, remove, and dispose the temporary curb.

“Temporary Pipe Slope Drain”, per linear foot.

The unit contract per linear foot shall be full pay for all work to complete and remove the installation of the pipe slope drain as shown in the plans. All materials shall become the property of the Contractor after removal.

“PAM”, per acre

When the contract requires applying PAM as an amendment to seeding, fertilizing, and mulching, or watering operations, all costs for furnishing and applying PAM shall be included in the unit contract price for the associated item of work.

9-17 FLEXIBLE GUIDE POSTS

9-17.1 General

Flexible guide posts shall be made of a flexible, nonwarping, nonmetallic, durable plastic material; shall be resistant to damage due to impact, ultraviolet light, ozone, hydrocarbons, and other effects of atmospheric weathering; shall resist stiffening with age; and shall exhibit good workmanship and be free of burns, discoloration, contamination and other objectionable marks or defects that affect appearance or serviceability. The portion of ground mounted guide post installed below ground may be the same material as the portion above ground or other durable material suitable for firmly anchoring the post in the ground. When iron or steel are used for the in ground portion, galvanize in accordance with AASHTO M 111. The top of tubular posts shall be closed to prevent moisture or debris from entering. Surface mounted guide posts shall be mounted on a base made of a rigid high impact resistant material and be resistant to ultraviolet light, ozone, and hydrocarbons. The post shall mount directly into or onto the base in a tamper proof manor and shall allow for easy replacement. Guardrail mounted guide posts shall be the same as ground mounted guide posts except the length shall be adjusted to meet the mounting height requirements in the Standard Plans. Appropriate holes shall be provided for fastening the guide post to the guard rail post.

The material composition of flexible guideposts subsequently furnished shall not vary from that of the samples upon which the State Materials Laboratory preapproval is based. If analysis by the Materials Laboratory determines there is a change in material composition, such change shall constitute grounds for rejection and/or removal from the Qualified Products List.

The post system shall be designed for permanent installation to resist overturning, twisting, and displacement from wind and impact forces.

Each flexible guidepost shall be permanently identified with the manufacturer's name, and the month and year of fabrication. Ground mounted guideposts shall have a permanent a mark indicating the recommended burial depth. The letters shall be solvent resistant, a minimum of 1/4 inch in height, and permanently affixed to the post. Unless otherwise specified, the color of the guidepost shall be white or brown as indicated in the Plans.

9-17.1(1) Dimensions

1. Flat Type – The post has a minimum width of 3 inches of continuous flat surface with no curvature for the entire length of the post. This will allow for ridges on the outer edges and back of post intended for structural support.
2. Tubular Type – The post is tubular or round/circular in shape. This allows for a tubular post with a minimum diameter of 3 inches or a tubular post with a minimum diameter of 2 inches with a flat or flattened oval surface at least 3 inches wide and 12 inches long measured from the top for mounting reflective sheeting.
3. Non-flat and Non-tubular Type – This includes all post that do not fit into the two types indicated above. This would include convex, w-shape, oval, and other post designs. The post shall be wide enough to accept a 3 inch wide reflective sheeting. Any curvature or rounding shall not significantly reduce the brightness value of the reflective sheeting.
4. Surface Mount Guide Post Base – The base for surface mount guide posts shall be approximately 8 inches in diameter with a maximum height of 2 inches.
5. Guide posts shall be of such length to provide the required mounting height above the pavement surface in accordance with the Standard Plans.

9-17.1(2) Reflective Sheeting

Reflective sheeting for guide posts shall be Type III, IV, V, or VII conforming to Section 9-28.12. The reflective panel on a flat or elliptical guidepost shall have a minimum width of 3 inches facing traffic. The reflective sheeting shall have a minimum area of 24 square inches (3 inches by 8 inches). The reflective panel on a round guidepost shall have an 8-inch minimum band of reflective sheeting visible for 360 degrees. Mount the reflective sheeting on the guide post as detailed in the Standard Plans. Sheeting shall remain in place during the life of the post.

9-17.2

Ultraviolet Resistance Test Procedure (Laboratory Test)

Two posts will be tested initially for tensile strength and elongation according to ASTM D-638 and again after 1,000 hours QUV weatherometer exposure (ASTM G53).

Six bow tie specimens shall be prepared from the delineator post samples submitted for the purpose of ultraviolet (UV) exposure. The specimens shall be cycled at 1,000 hours in a weatherometer in accordance with ASTM G 53 (3 hr. 60C UV, 3 hr. 50C CON). Three of each type shall be used for control purposes. The remaining three shall be subjected to 1000 hours of UV exposure in the QUV weatherometer. Specimen dimensions conform to those outlined below.

The laboratory test data shall summarize the tensile strength of each, and the average tensile strength for both control and weathered samples. The data shall also summarize the elongation of each, and the average elongation for both control and weathered samples. The average values shall be used to show the percent change in tensile and elongation.

9-17.2 (1) Acceptance The specimens shall show no signs of delamination, distress, or discoloration. Physical properties of tensile strength and rigidity shall be maintained within 80 percent of the unconditioned values.

9.17.3.

Field Impact Test Procedure

Sample size of eight units will be tested the following way:

Flexible Ground Mounted Posts

Eight flexible ground mounted posts installed by the manufacturer (four installed manually and four installed mechanically). The delineators will be hit ten times (four posts for glancing bumper hits and four posts for wheel hits). A standard sedan with a bumper height of approximately 18" while traveling at a speed of 55 ± 2 mph will be used for impact testing. Five of the impacts will be at an ambient temperature of 32 ± 5°F and the remaining five impacts at an ambient temperature of 85 ± 5°F. The test vehicle shall impact four of the posts at an angle perpendicular to the front of the post and shall impact the remaining posts at an angle of 25° clockwise from the angle perpendicular to the front of the posts. The same test samples will be used for the ten hits. Two flexible posts will be used for weatherometer testing. A glancing hit is defined as one on the bumper near the vehicle headlight. The delineators shall be installed a minimum of eight hours prior to being hit.

Flexible Surface Mounted Posts

Eight flexible surface mounted posts installed by the manufacturer will be hit ten times (four posts for glancing bumper hits and four posts for wheel hits). A standard sedan with a bumper height of approximately 18" while traveling at a speed of 55 ± 2 mph will be used for impact testing. Five of the impacts will be at an ambient temperature of 32 ± 5°F and the remaining five impacts at an ambient temperature of 85 ± 5°F. The test vehicle shall impact four of the posts at an angle perpendicular to the front of the post and shall impact the remaining posts at an angle of 25° clockwise from the angle perpendicular to the front of the posts. The same test samples will be used for the ten hits. Two flexible posts will be used for weatherometer testing. A glancing hit is defined as one on the bumper near the vehicle headlight. The delineators shall be installed a minimum of eight hours prior to being hit.

9-17.3 (1) Test Observations

Inspect each post after each impact and document the following:

1. Any splits, cracks, breaks or other forms of deformation or distress;
2. The percent list to vertical two minutes after each impact;
3. The approximate percentage of the reflective area that is damaged after each impact to an extent it no longer performs as intended;
4. Any problems or comments associated with the installation and removal of the posts and bases. The testing agent will document any special equipment or techniques required for installing or removing the posts and bases.
5. Any problems or comments associated with the performance of each ground mounted flexible delineator post that would be of interest to the states;
6. Type of soil and impact surface.

9-17.3 (2) Acceptance

A failure is defined as any of the following:

1. A minimum of 50 percent of the reflective sheeting shall be retained undamaged. An area of damage greater than 50 percent is considered a failure.
2. If the guide post leans more than 10 degrees from vertical it is considered a failure.
3. Any cracking, other than surface cracking evident on only one face of the post, is considered a failure.
4. Pullout in excess of 3 inches is considered a failure.

At least five or six?? of the guide posts must pass each criteria in the 55 + 2miles per hour series of impacts to be acceptable.

9-17.4 **Pre-approval**

In order for a particular model of flexible guidepost to become preapproved, the following conditions must be met:

1. The manufacturer must submit a written request for pre-approval along with samples for each model to be tested to: State Materials Engineer, Department of Transportation Materials Laboratory, P.O. Box 47365, Olympia, WA 98504-7365. Requests shall identify the model for which approval is being requested.

2. Samples shall be complete with reflective panel attached, and shall be accompanied by the manufacturer's written installation procedures.

3. The guideposts will be field impact tested by the State Materials Laboratory to verify compliance with these specifications.

4. In lieu of State Materials Laboratory testing, the Lab will accept the results of pre-approved testing performed by the manufacturer or other agencies under the following conditions:

    a. The State Materials Laboratory is informed of the pre-approval testing sufficiently in advance in order to attend and observe. Attendance will be at the discretion of the Materials Laboratory.
    b. The results of the testing shall be reported in sufficient detail to enable the State Materials Laboratory to evaluate compliance with these specifications.

The manufacturer must submit a certified test report, including test data developed by an approved testing laboratory, which demonstrates that the guidepost complies with the requirements of these specifications. Certified test data supplied by the manufacturer shall be subject to verification by appropriate tests conducted by the State Materials Laboratory. Frequency of field-testing, evaluation, and preapproval updating shall be at the sole discretion of the State Materials Laboratory.